

ABSTRACT

An electrical circuit, attached to the tiles of the space shuttle, provides an indication of tile integrity in real time. Each tile has a resistor attached thereto between parallel conductors, and a series of tiles forms a protected grid series tile section. A computer, in conjunction with an ohm measuring device, continually monitors the tile integrity by comparing the baseline resistance of the protected grid series tile section to a measured value. A substantial difference in resistance between the measured value and the baseline value indicates the location and magnitude of a loss in integrity in the section, and an indication of such is provided to the shuttle crew. The conductors may be formed within the tile or may be attached to the thermally protected side of the tile.